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west into Chowambe, which I suppose to be Baker's Lake, or into Tanganyika, and through by a river named Loanda into the same lake.

\* \* \* \* \*

"We are in the same quarter of the world yet. I do not know if Kirk has come to Zanzibar. I hope in a couple of months to be at Ujiji, where I have goods and I hope letters. Want of paper prevents my writing to my friends, A note for Agnes goes by this.

"With love to Lady Murchison, I am ever affectionately yours,  
(Signed) "DAVID LIVINGSTONE."

"POSTSCRIPT.—The following is a summary on sources. From 30 to 40 yards broad, and always deep enough to require either canoes or bridges. Chambese, Luapula, Lualaba, and the Lakes receive thirteen sources, each larger than the Isis at Oxford or Avon at Hamilton. Another line of drainage receives five sources. A third receives other five, or twenty-three (23) in all. I do not count small burns from 5 to 10 or 15 yards broad. Lofu has eleven of these, all perennial, nor do I refer to the oozes or sponges, which are the sources of them all.

(Signed) "D. L."

#### 4. *Letter from Dr. LIVINGSTONE to Sir BARTLE FRERE.*

"Near Lake Bangweolo, South Central Africa,  
July, 1868.

"MY DEAR SIR BARTLE,

"When I wrote to you in February, 1867, I had the impression that I was then on the watershed between the Zambesi and either the Congo or the Nile. Further observation now leads me to believe that impression to have been correct; and from what I have myself seen, together with what I have heard from intelligent natives, I think that I can safely assert that the chief sources of the Nile rise between  $10^{\circ}$  and  $12^{\circ}$  s. latitude; or nearly in the position assigned to them by Ptolemy, whose River Rhapta is probably the Rovuma. I cannot yet speak positively of the parts w. and s.n.w. of Tanganyika, because these have not yet come under my observation; but, if you will read the following short sketch of what I have seen, you will see that the springs of the Nile have hitherto been sought for very much too far to the north.

"Leaving the valley of the Loangwa at  $12^{\circ}$  s., we climbed up what seemed to be a great mass of mountains; but it turned out to be the southern edge of an elevated region, the height of which is from 4000 to 6000 feet above the level of the sea. This upland may be roughly said to cover a space south of Lake Tanganyika of some 350 miles square. It is generally covered with dense forest, has an undulating surface, a rich soil, is well watered with numerous rivulets, and, for Africa, is cold. It slopes towards the north and west, but I have not seen any part of it under 3000 feet of altitude. The country of Usango, situated east of the space indicated, is also an upland, and affords pasturage for the immense herds of cattle of the Basango (Wasango of the Arabs), a very light-coloured race, very friendly with strangers. Usango forms one, the eastern side of the southern end of a great but still elevated valley. The other, or western side, is formed by what are called the Kone Mountains, beyond the copper-mines of Katanga. Still further west, and beyond the Kone Range or plateau, rises our old acquaintance the Zambesi by the name of Jambaji. Referring back to  $12^{\circ}$  s.—it was rarely possible to obtain even a latitude; but accidentally awaking one morning after we were fairly on the upland, I found a star which showed lat.  $11^{\circ} 56'$  s., and next day we crossed

two rivulets running north. As we advanced brooks became numerous, some went backwards or sideways into the Loangwa, and with it to join the Zambesi at Zumbé, but the greater number went north or north-west into the River Chambeze. This—misled by a map calling it, in an offhand manner, '*Zambezi, Eastern branch*'—I took to be the river so indicated; but the Chambeze, with all its branches, flows from the side into the centre of the great Nile Valley. It is remarkable as helping to form three lakes, and changing its name three times in the 500 or 600 miles of its course. First of all it is the Chambeze, which I crossed in  $10^{\circ} 34'$  s. I crossed several of its confluent, both on its south and north, quite as large as the Isis at Oxford, but running faster, and having hippopotami in them. I mention these animals, because, when navigating the Zambesi, I steered always boldly on to where these beasts lay, sure of never finding less than eight feet of water. The Chambeze flows into Lake Bangweolo, and on coming out of it assumes the name Luapula. Luapula flows down north, past the town of Cazembe, and then enters Lake Moero. On emerging from it the name Lualaba is taken. In passing on N.N.W. it becomes very large, and forms Ulenge in the country west of Tanganyika. I have seen it only where it leaves Moero by a crack in the mountains of Rua, and where it comes out again, and am sure it is sufficient to form Ulenge, whether it is a lake with many islands in it, or a punjaub, if I may use the word, before its waters are all gathered up by the Lufira, a large river, which drains the western side of the great valley and having its sources between  $11^{\circ}$  and  $12^{\circ}$  s. Beyond Ulenge, and Ulenge itself, is purely native information; and some believe that when the Lufira takes it up it flows N.N.W. into a large lake named Chowambe, which I conjecture to be that discovered by Mr. Baker: others think that it goes into Tanganyika, and flows thence into Chowambe, by a river named Loanda. I suspend my judgment, but think if the immense amount of water I have seen going north does not flow past Lake Tanganyika on the west, it must have an exit, and in all probability it is by the Loanda.

"Referring again to the upland, I found it divided into districts—Lobisa, Lobemba, Ulungu, Itawa, Lopere, Kabuire, Lunda, and Rua; the people are known by putting Ba- instead of the initial syllable for country, Lo or U; the Arabs use Wa instead of Ba, as that is Suaheli. On the slope north, and in the Balungu country, I discovered Lake Liemba on 2nd April, 1867. It lies in a hollow, with precipitous sides 2000 feet down. It is extremely beautiful, sides, top, and bottom being richly clothed with trees and other vegetation. Elephants, buffaloes, and antelopes feed on the steep slopes; fish and hippopotami swarm in the waters. Two rocky islands are inhabited by fishermen, who, besides fishing, cultivate the ground and rear goats. The lake is not large, from 18 to 20 miles broad, and from 30 to 40 long. Four good-sized rivers flow into it, and many 'burns' (*Scoticè* for brooks), which form pretty cascades as they leap down the bright red clay-schist rocks. It goes away in a river-like prolongation two miles wide, N.N.W. it is said, to Tanganyika. Were it not 2800 feet above the sea, I should consider it an arm of that lake, but Speke makes it 1844 feet only. I tried to follow this arm, but was prevented by war. A large party of Arab traders from Zanzibar had been attacked by the Chief of Itawa. I set off to go round about the disturbed district; met the Arabs, and, having showed them Seyd Majid's letter, was at once supplied with cloth, beads, and provisions. Thanks to your good offices with the Sultan, I have been treated by all the Arabs with the greatest kindness and consideration. The heads of the party readily perceived that a continuance of hostilities meant shutting up the ivory market, so peace was made, but the process required three months and a half. They would not allow me to go into any danger, so I had to remain at a village 4700 feet above the sea, and employ my time in the pig's employment of taking on fat. When we did move I went somehow west with my Arab friends, and I am glad that I saw their mode

of ivory and slave trading. It was such a contrast to that of the ruffians from Kilwa and the Portuguese from Tette. On leaving them we came to Moero on the 8th November, 1867. This in the northern part is from 20 to 33 miles broad. Further south it is at least 60 miles in width, and it is 50 miles long; ranges of tree-covered mountains flank it on both sides. We passed up its eastern shore and visited Cazembe, who has several times been visited by Portuguese. I remained 40 days with Cazembe, and might have come on to Bangweolo; but the rains had set in, and this lake was reported to be very unhealthy. Not having a grain of any kind of medicine, and as fever without treatment produces fits of total insensibility and loss of power over the muscles of the back, I thought it would be unwise to venture. Went north, intending to go to Ujiji for goods and letters, not having heard a word of any kind from anywhere for two years, but I was brought to a standstill at a distance of 13 days from Tanganyika by the superabundance of water in the country in front. A native party came through, and described the waters as often thigh and waist deep and sleeping-places difficult to find. This inundation lasts till May or June. When I became utterly tired of inactivity, I doubled back in my course to Cazembe in April; and that you may understand the nature of the flood that here annually enacts the part of the Nile further down, I may say that two rivulets, each from 30 to 40 yards broad, flow into the north end of Moero. One had a quarter and the other half a mile of flood on each bank, from thigh to waist deep. They were crossed by bridges. Then one of them had flooded a plain abreast of Moero, and we had four hours of plunging in water and black mud. The last mile was the worst, though the rest had many deep ruts, into which, from not seeing them, we plunged and sent up a rush of hundreds of bubbles to the surface, all charged with a frightful odour. Before getting out to the clean sandy beach of Moero the flood-water was high up on the chest. Then we had to wade four brooks thigh-deep, cross a river 80 yards broad with 300 yards of flood on its western bank so deep we had to keep to the canoes till within 50 yards of the higher grounds. Four other brooks had to be forded ere we reached Cazembe. One, the Chungu, was the scene of Dr. Lacerda's death. He was the only Portuguese of any scientific acquirements, and was 50 miles wrong in latitude alone. Probably fever clouded his mind when he observed, and any one who knows what that implies will readily excuse any mistake he may have made.

"The Chungu went high up on the chest, and one had to walk on tiptoe to avoid swimming. Only four of my attendants would come; the others absconded on various pretexts. The fact is, they are all tired of this everlasting tramping, and so am I. Nothing could be brought but the veriest necessities,—no paper, only a couple of note-books and the Bible. I have borrowed this and another sheet from an Arab trader; the other is for Lord Clarendon, and they will go by a party proceeding to the coast through Usango. I would go myself, if it were not for an inveterate dislike to give up what I have undertaken without finishing it. I am often distressed in thinking of a son whom I left at the University of Glasgow. He was to be two years there, then spend a year or more in Germany for French and German, before trying the Civil Service examination for India. He will now be in especial need of my counsel and assistance, and here I am at Bangweolo. His elder brother, after being well educated, wandered into the American war, and we know no more of him after an engagement before Richmond. Possibly, Sir Charles Wood, in consideration of my services, might do something to fix this one. I never asked anything for myself. Lord Palmerston sent Mr. Hayward, a Queen's Counsel, to me before I left home this time, to ask 'what he could do for me, as he was most anxious to serve me.' I don't know how it was, but it never once occurred to me, till I was in here, that he meant anything for myself. I replied that if he could open the Portuguese ports in

East Africa to free trade, this was the greatest boon he could confer. I thought only of my work, and not of myself or children. I feel more at liberty in telling you of my domestic anxiety, and my fears lest Tom should go to the examination unprepared, because you have a family yourself, and will sympathise with me. I shall give Lord Clarendon the same geographical information as I have given you; and as I have not the conscience to ask more paper from my Arab friend, I shall ask Miss Frere to favour me by writing to my daughter a little of the above, and sending it to Mr. Murray, who will know where she is. Agnes is to tell Tom not to go in for examination till he is well prepared, and he may take a year more of education where he may have found the most benefit. I had written you a long letter, which now lies at Kabuire; the foregoing contains the substance of it. Miss Frere must take this into consideration, if annoyed at my asking her to write to a stranger in such a climate as that of India. I regret that the Nile has prevented me from following out my aspirations for the benefit of the people. I sometimes comfort myself by the hope that by making this country and its inhabitants better known, and occasionally imparting a little knowledge, I may be working in accordance with the plans of the all-embracing Providence for the good time coming yet. At other times, I feel as if serving a few insane geographers, who will count me a man and a brother. There is a large tribe of Troglodytes in Rua, with excavations 30 miles in length, and a running rill passing along the entire street. They ascribe these rock-dwellings to the hand of the Deity. The 'writings' in them are drawings of animals; if they had been letters, I must have gone to see them. People very black, strong, and outer angle of eyes upwards. The summary of sources I give Lord Clarendon as flowing into Chambeze—Luapula, Lualaba; and the lakes are thirteen in all, and are larger than the Isis at Oxford and Avon at Hamilton. Five in another line of drainage, and five in a third receptacle, make twenty-three in all: these do not include 'burns.' Lofu has eleven of them, from 5 to 15 yards wide, and perennial. I did get a bit of paper and write to Agnes, so Miss Frere is absolved from the penance. Love to Lady Frere and her family.

(Signed)

"DAVID LIVINGSTONE."

5. *Letter from Dr. KIRK to C. GONNE, Esq., Secretary to the Government, Bombay.*

"SIR,

"Zanzibar, 7th September, 1869.

"The chief point of geographical interest in the present letter of Dr. Livingstone is the statement that the sources of the Nile are to be found in the lakes and rivers that drain the great valley in which Cazembe is situated, and lying to the south of Tanganyika, between 10° and 12° of south latitude.

"The town of Cazembe, from which Dr. Livingstone's previous letters (December, 1867) were dated, has been already visited and described by two Portuguese missions. It is situated on the shores of one of a chain of lakes and rivers that flow northwards.

"The Chambeze, having collected by many streams the waters of the northern slope of the damp, elevated plains, flows to join Lake Bangweolo; this, again, is connected with Lake Moero by the Loapula, on whose banks the town of Cazembe is built. Moero is, in its turn, drained by the Lualaba into another lake, named Ulenge, and here exploration ends.

"Natives have told Dr. Livingstone that Ulenge is an island-studded lake, whose waters join the Lufira, a large river coming from the western side of the same great plain, whose eastern slope is drained by the Chambeze. This united stream, some say, enters the Tanganyika, and thence, by the Loanda, into Lake Chowambe; but Dr. Livingstone's informants are not unanimous, and some assert that the Lufira passes to the west of Tanganyika, and so to the